What is claimed is:

1. A flow through isolation valve, said flow through isolation valve comprising:

a stationary member;

a movable member, a surface of said stationary member interfacing with a surface of said movable member; and

at least one pin isolation valve;

said at least one pin isolation valve having a flow through internal conduit,

said at least one pin isolation valve movably disposed so that said internal conduit is capable of fluidically communicating with at least one blank opening in said movable member,

said at least one pin isolation valve movably disposed so that said internal conduit within said pin isolation valve is capable of fluidically communicating with a flow through conduit in said movable member.

2. The flow through isolation valve according to claim 1, wherein said movable member moves by rotation around an axis of rotation.

3. The flow through isolation valve according to claim 1, wherein said movable member moves by at least one of linear and curvilinear translation.

4. The flow through isolation valve according to claim 1, wherein one of said at least one pin isolation valves is fluidically coupled to a sample loop of a face seal valve of a high pressure liquid chromatography (HPLC) system.

5. The flow through isolation valve according to claim 1, wherein one of said at least one pin isolation valves is fluidically coupled to a pump supplying high pressure liquid to a face seal valve of a high pressure liquid chromatography (HPLC) system.

6. The flow through isolation valve according to claim 1, wherein one of said at least one pin isolation valves is fluidically coupled to a column discharging high pressure liquid from a face seal valve of a high pressure liquid chromatography (HPLC) system.

7. A flow though isolation valve,

said isolation valve disposed around an axis of rotation, said isolation valve comprising:

at least two opposing valve ends disposed around said axis of rotation;

a rotor disposed between said valve ends, an axis of rotation of said rotor being one of parallel and coincident with the axis of rotation of said isolation valve, said rotor disposed such that orientation of said rotor can change by rotation around the axis of rotation of said rotor, said rotor having

an outer surface having at least first and second openings on said outer surface,

at least two surfaces each intersecting said outer surface,

a flow-through conduit having an opening on a first of said at least two surfaces intersecting said outer surface and an opening on a second of said at least two surfaces intersecting said outer surface;

a flow through conduit having an opening on said outer surface coincident with said first opening on said outer surface and an opening on said first of said at least two surfaces intersecting said outer surface,

a flow through conduit having an opening on said outer surface coincident with said second opening on said outer surface and an opening on said second of said at least two surfaces intersecting said outer surface,

at least one blank opening on said first of said at least two surfaces intersecting said outer surface,

at least one blank opening on said second of said at least two surfaces intersecting said outer surface,

a first sealing annulus for sealing said openings on said first of said at least two surfaces intersecting said outer surface, and

a second sealing annulus for sealing said openings on said second of said at least two surfaces intersecting said outer surface;

a first pin isolation valve having an internal conduit, said first pin isolation valve disposed to move along said axis of rotation of said isolation valve through one of said valve ends;

said first pin isolation valve movably disposed so that said internal conduit is capable of fluidically communicating with said at least one blank opening on said first of said at least two surfaces intersecting said outer surface,

said first pin isolation valve movably disposed so that said internal conduit is capable of fluidically communicating with said flow through internal conduit having an opening on said outer surface and an opening on a second of said at least two surfaces intersecting said outer surface;

a second pin isolation valve, said second pin isolation valve disposed to move along the axis of rotation of said isolation valve through another one of said valve ends, said pin isolation valve including an internal conduit;

said second pin isolation valve movably disposed so that said internal conduit is capable of fluidically communicating with said at least one blank opening on said second of said at least two surfaces intersecting said outer surface,

said second pin isolation valve movably disposed so that said internal conduit within said second pin isolation valve is capable of fluidically communicating with said flow through conduit having an opening on said outer surface and an opening on said second of said at least two surfaces intersecting said outer surface.

8. The flow through isolation valve according to claim 7, wherein the axis of rotation of said rotor is the centerline of said rotor.

9. The flow through isolation valve according to claim 7, wherein the axis of rotation of said isolation valve is the centerline of said isolation valve.

10. The flow through isolation valve according to claim 7, wherein said rotor further comprises:

a rotor clamp having an outer surface and an inner surface, the inner surface surrounding at least a portion of the outer surface of said rotor,

a first opening on the outer surface of said rotor clamp penetrating said rotor clamp to coincide with said first opening on the outer surface of said rotor, and

a second opening on the outer surface of said rotor clamp penetrating said rotor clamp to coincide with the second opening on the outer surface of said rotor.

11. The flow through isolation valve according to claim 10, further comprising at least one of a (a) third pin isolation valve, and (b) fourth pin isolation valve;

said third pin isolation valve having an internal conduit, said third pin isolation valve disposed within said first opening on said outer surface of said rotor clamp so that said internal conduit of said third pin isolation valve is disposed to be in fluidic communication with said opening on the outer surface of said flow through conduit having an opening on the outer surface and an opening on the first of said at least two surfaces intersecting the outer surface of said rotor,

said fourth pin isolation valve having an internal conduit, said fourth pin isolation valve disposed within said second opening on the outer surface of said rotor clamp so that said internal conduit of said fourth pin isolation valve is disposed to be in fluidic communication with said opening on the outer surface of said flow through conduit having an opening on the outer surface and an opening on said second of said at least two surfaces intersecting the outer surface of said rotor.

12. The flow through isolation valve according to claim 10, wherein said rotor clamp further comprises drive means for driving said rotor to rotate around the axis of rotation of said rotor.

13. The flow through isolation valve according to claim 12, wherein said rotor clamp drive means comprises a gear drive operator.

14. The flow through isolation valve according to claim 12, wherein said rotor clamp drive means comprises a handle operator.

15. The flow through isolation valve according to claim 7, wherein at least one of said valve ends comprises:

a stator enclosing the at least one pin isolation valve,

said stator adjacent to said rotor;

a sealing layer enclosed within said stator and enclosing said at least one pin isolation valve for sealing said at least one pin isolation valve;

a Belleville spring washer;

a Belleville spring;

a load washer; and

a spherical nut,

said Belleville spring washer, said Belleville spring, said load washer and said spherical nut axially arranged to impose an axial force for sealing said sealing layer enclosing said pin isolation valve.

16. The flow through isolation valve according to claim 15, wherein said sealing layer is comprised of at least one of PEEK (polyetheretherketone) and PTFE (polytetrafluorethylene)

17. The flow through isolation valve according to claim 7, wherein said rotor is comprised of PEEK blend.

18. The flow through isolation valve according to claim 8, wherein said rotor clamp is comprised of stainless steel.

19. The flow through isolation valve according to claim 18, wherein said stainless steel is Type 316 stainless steel.

20. The flow through isolation valve according to claim 7, wherein either of said first and second pin isolation valves is fluidically coupled to a sample loop of a face seal valve of a high pressure liquid chromatography (HPLC) system.

21. The flow through isolation valve according to claim 11, wherein either of said third and fourth pin isolation valves is fluidically coupled to a pump supplying high pressure liquid to a face seal valve of a high pressure liquid chromatography (HPLC) system.

22. The flow through isolation valve according to claim 11, wherein either of said third and fourth pin isolation valves is fluidically coupled to a column discharging high pressure liquid from a face seal valve of a high pressure liquid chromatography (HPLC) system.

23. A rotor for a flow though isolation valve,

said isolation valve disposed around an axis of rotation, said isolation valve comprising:

at least two opposing valve ends disposed around said axis of rotation;

said rotor disposed between said valve ends, an axis of rotation of said rotor being substantially parallel and coincident with the axis of rotation of said isolation valve, said rotor disposed such that orientation of said rotor can change by rotation around the axis of rotation of said rotor, said rotor having

an outer surface;

at least two surfaces each intersecting said outer surface;

a flow-through conduit having an opening on a first of said at least two surfaces intersecting said outer surface and an opening on a second of said at least two surfaces intersecting said outer surface;

and at least one of

(a) a flow through conduit having an opening on said outer surface coincident with said first opening on said outer surface and an opening on the first of the at least two surfaces intersecting said outer surface; and

(b) a flow through conduit having an opening on the outer surface coincident with said second opening on the outer surface and an opening on the second of said at least two surfaces intersecting said outer surface.

24. The rotor according to claim 23, further comprising

at least one blank opening on the outer surface.

25. The rotor according to claim 23, further comprising a sealing annulus for sealing said openings on at least one of the first of and second of said at least two surfaces intersecting said outer surface.

26. The rotor according to claim 23, further comprising

a rotor clamp having an outer surface and an inner surface, the inner surface surrounding at least a portion of the outer surface of said rotor; and

an opening on the outer surface of said rotor clamp penetrating said rotor clamp to coincide with said at least one of a first opening and a second opening on the outer surface of said rotor.

27. The rotor according to claim 23, wherein said rotor is comprised of PEEK (polyetheretherketone) blend.

28. A flow through isolation valve, said isolation valve comprising

a stationary member;

a movable member;

said stationary member and said movable member interfacing at a surface, said movable member disposed to slide along said surface;

a chamber disposed between said stationary member and said movable member, said chamber bounded by said surface;

said movable member having a first flow through conduit having an opening interfacing with said chamber and an opening on a surface of said movable member not interfacing with said chamber,

said movable member having a second flow through conduit having an opening interfacing with said chamber and an opening on a surface of said movable member not interfacing with said chamber,

a first blank opening on said surface bounding said chamber, and

a second blank opening on said surface bounding said chamber.

29. The flow through isolation valve according to claim 28, further comprising:

a first pin isolation valve having an internal conduit, said first pin isolation valve disposed within said opening of said first flow through conduit on a surface of said movable member not interfacing with said chamber, said internal conduit of said first pin isolation valve capable of fluidically communicating with said first flow through conduit; and

a second pin isolation valve having an internal conduit, said second pin isolation valve disposed within said opening of said second flow through conduit on a surface of said movable member not interfacing with said chamber, said internal conduit of said second pin isolation valve capable of fluidically communicating with said second flow through conduit.

30. The flow through isolation valve according to claim 29, further comprising at least one of a (a) third pin isolation valve, and (b) fourth pin isolation valve;

said third pin isolation valve having an internal conduit,
said third pin isolation valve disposed within an opening within said stationary member interfacing with said chamber so that said internal conduit of said third pin isolation valve is movably disposed to be in fluidic communication

with said opening interfacing with said chamber and an opening on a surface of said stationary member not interfacing with said chamber,

said internal conduit of said third pin isolation valve movably disposed to be in fluidic communication with said first blank opening on said surface bounding said chamber,

said fourth pin isolation valve having an internal conduit,

said fourth pin isolation valve disposed within an opening within said stationary member interfacing with said chamber so that said internal conduit of said fourth pin isolation valve is movably disposed to be in fluidic communication with said opening interfacing with said chamber and an opening on a surface of said stationary member not interfacing with said chamber.

said internal conduit of said fourth pin isolation valve movably disposed to be in fluidic communication with said second blank opening on said surface bounding said chamber.

31. The flow through isolation valve according to claim 28, further comprising a housing enclosing said stationary member and said movable member.

32. The flow through isolation valve according to claim 30, further comprising a housing enclosing said stationary member and said movable member and at least one of said pin isolation valves, said internal conduit of said at least one pin isolation valve fluidically coupled to a conduit penetrating said housing.

33. The flow through isolation valve according to claim 28, wherein said movable member is moved by a linear electric motor.

34. The flow through isolation valve according to claim 28, wherein either of said first and second pin isolation valves is fluidically coupled to a sample

loop of a face seal valve of a high pressure liquid chromatography (HPLC) system.

35. The flow through isolation valve according to claim 30, wherein either of said third and fourth pin isolation valves is fluidically coupled to a pump supplying high pressure liquid to a face seal valve of a high pressure liquid chromatography (HPLC) system.

36. The flow through isolation valve according to claim 30, wherein either of said third and fourth pin isolation valves is fluidically coupled to a column discharging high pressure liquid from a face seal valve of a high pressure liquid chromatography (HPLC) system.

37. The flow through isolation valve according to claim 31, wherein said housing is capable of retaining pressure greater than atmospheric pressure.

38. The flow through isolation valve according to claim 32, wherein said housing is capable of retaining pressure greater than atmospheric pressure.

39. The flow through isolation valve according to claim 28, wherein said movable member is comprised of PEEK (polyetheretherketone) blend.

40. The flow through isolation valve according to claim 28, wherein said interfacing surface between said stationary member and said movable member is sealed by at least one lip seal.

41. The flow through isolation valve according to claim 30, wherein at least one of said openings of said third and fourth pin isolation valves is sealed by a lip seal.

42. The flow through isolation valve according to claim 40, wherein said lip seal is self-energizing.

43. The flow through isolation valve according to claim 41, wherein said lip seal is self-energizing.

44. The flow through isolation valve according to claim 28, wherein said movable member consists of at least one of (a) metal, (b) polymer, and (c) sapphire.

45. A method of operating a flow through isolation valve, the valve comprising:

a movable member, the movable member having

first and second conduits for interfacing with internal conduits of first and second pin isolation valves,

said conduits opening to a surface of said movable member ;

first and second blank openings for interfacing with said internal conduits of said first and second pin isolation valves,

(A) wherein the valve is in an initial position of flow isolation such that at least one of (a) said first pin isolation valve providing fluid flow interfaces with said first blank opening and (b) said second pin isolation valve exhausting said fluid flow interfaces with said second blank opening,

the method comprising the steps of:

(I) wherein said first pin isolation valve interfaces with said first blank opening,

(1) moving said first pin isolation valve away from said first blank opening,

(2) moving said movable member, and

(3) moving said first pin isolation valve towards said movable member such that said internal conduit within said first pin isolation valve interfaces with said first conduit opening to a surface of said movable member; and

(II) wherein said second pin isolation valve interfaces with said second blank opening,

(1) moving said second pin isolation valve away from said second blank opening,

(2) moving said movable member, and

(3) moving said second pin isolation valve towards said movable member such that said internal conduit within said second pin isolation valve interfaces with said second conduit opening to a surface of said movable member, and

(B) wherein the valve is in an initial position of flow throughput such that at least one of (a) said first pin isolation valve providing fluid flow interfaces with said first conduit and (b) said second pin isolation valve exhausting said flow interfaces with said second conduit,

the method comprising the steps of:

(III) wherein said first pin isolation valve interfaces with said first conduit,

(1) moving said first pin isolation valve away from said first conduit,

(2) moving said movable member, and

(3) moving said first pin isolation valve towards said movable member such that said internal conduit within said first pin isolation valve interfaces with said first blank opening; and

(IV) wherein said second pin isolation valve interfaces with said second conduit,

(1) moving said second pin isolation valve away from said second conduit,

(2) moving said movable member, and

(3) moving said second pin isolation valve towards said movable member such that said internal conduit within said second pin isolation valve interfaces with said second blank opening.

46. The method of operating a flow through isolation valve according to claim 45, wherein said flow through isolation valve supplies fluid flow to a high pressure liquid chromatography (HPLC) system, the system comprising

said flow through isolation valve, and

a face seal valve, said face seal valve having

a first port for receiving high pressure fluid,

a second port capable of being fluidically coupled to at least one of said first port and to an inlet end of a sample loop,

a third port capable of being fluidically coupled to a sample supply and to at least one of said inlet end of said sample loop and to a fourth port capable of being fluidically coupled to a syringe for aspirating the sample,

a fifth port capable of being fluidically coupled to at least one of said fourth port and to an outlet end of said sample loop, and to a sixth port for discharging high pressure fluid,

said flow through isolation valve fluidically coupled to said face seal valve by means of a first conduit coupling said first port and said first conduit and by means of a second conduit coupling said sixth port and said second conduit,

the method further comprising the steps of:

(A') during a load phase wherein said flow through isolation valve is in an initial position of flow isolation:

(1') coupling said second port to said third port,

(2') coupling said fifth port to said fourth port,

and

(3') aspirating sample liquid into said sample loop by operating the syringe,

(B') a transition phase wherein said flow through isolation valve remains in the initial position of flow isolation:

(1') transferring coupling of said second port from said third port to said first port for receiving high pressure liquid, and

(2') transferring coupling of said fifth port from said fourth port to said sixth port for discharging high pressure liquid; and

(C') during an injection phase wherein said face seal valve is in a position of flow throughput through said sample loop and

(I) wherein said first pin isolation valve interfaces with said first blank opening:

(1) moving said first pin isolation valve away from said first blank opening,

(2) moving said movable member, and

(3) moving said first pin isolation valve towards said movable member such that said internal conduit within said first pin isolation valve interfaces with said first conduit opening to a surface of said movable member; and

(II) wherein said second pin isolation valve interfaces with said second blank opening,

(1) moving said second pin isolation valve away from said second blank opening,

(2) moving said movable member, and

(3) moving said second pin isolation valve towards said movable member such that said internal conduit within said second pin isolation valve interfaces with said second conduit opening to a surface of said movable member.

47. The method according to claim 46, wherein following (C') the injection phase wherein said face seal valve is in a position of flow throughput through said sample loop, the method further comprising the steps of:

(B) wherein the flow through isolation valve is in an initial position of flow throughput such that at least one of (a) said first pin isolation valve providing fluid flow interfaces with said first conduit and (b) said second pin isolation valve exhausting said fluid flow interfaces with said second conduit, and

(III) wherein said first pin isolation valve interfaces with said first conduit,

(1) moving said first pin isolation valve away from said first conduit,

(2) moving said movable member, and

(3) moving said first pin isolation valve towards said movable member such that said internal conduit within said first pin isolation valve interfaces with said first blank opening; and

(IV) wherein said second pin isolation valve interfaces with said second conduit,

(1) moving said second pin isolation valve away from said second conduit,

(2) moving said movable member, and

(3) moving said second pin isolation valve towards said movable member such that said internal conduit within said second pin isolation valve interfaces with said second blank opening.

48. The method according to claim 47, wherein following (B') the transition phase wherein said face seal valve is in a position of flow throughput through said sample loop, the method further comprising the steps of:

(1'') transferring coupling of said fifth port from said sixth port to said fourth port, and

(2'') transferring coupling of said second port from said first port to said third port.

49. The method according to claim 48, further comprising the step of:

(3'') aspirating sample liquid into said sample loop by operating the syringe.

50. The method according to claim 45, wherein said steps (A) wherein the valve is in an initial position of flow isolation and

(I) wherein said first pin isolation valve interfaces with said first blank opening, and (II) wherein said second pin isolation valve interfaces with said second blank opening, the steps of

(1) moving said first pin isolation valve away from said first blank opening and moving said second pin isolation valve away from said second blank opening are performed simultaneously, and

(2) moving said movable member, so that

(3) moving said first pin isolation valve towards said movable member such that said internal conduit within said first pin isolation valve interfaces with said first conduit opening to a surface of said movable member and

moving said second pin isolation valve towards said movable member such that said internal conduit within said second pin isolation valve interfaces with said second conduit opening to a surface of said movable member are performed simultaneously.

51. The method according to claim 45, wherein said steps (B) wherein the valve is in an initial position of flow throughput and

(III) wherein said first pin isolation valve interfaces with said first conduit, and (IV) wherein said second pin isolation valve interfaces with said second conduit, further comprising the steps of:

(1) moving said first pin isolation valve away from said first conduit and moving said second pin isolation valve away from said second conduit are performed simultaneously, and

(2) moving said movable member, so that

(3) moving said first pin isolation valve towards said movable member such that said internal conduit within said first pin isolation valve interfaces with said first blank opening and moving said second pin isolation valve towards said movable member such that said internal conduit within said second pin isolation valve interfaces with said second blank opening are performed simultaneously.